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***Hazardous Waste Management Act/Resource
Conservation and Recovery Act Closure Plan
for the Test Area North/Technical Support
Facility Intermediate-Level Radioactive Waste
Management System***

Phase II: Feed Subsystem (V-Tanks)



Idaho National Engineering and Environmental Laboratory

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Resource Conservation and Recovery Act
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ABSTRACT

The Test Area North/Technical Support Facility Intermediate-Level Radioactive Waste Feed Subsystem was an integral component of the Intermediate-Level Radioactive Waste Management System. This partial closure plan is one of three partial closure plans addressing Hazardous Waste Management Act/Resource Conservation and Recovery Act closure of the Intermediate-Level Radioactive Waste Management System. This plan specifically addresses the closure activities for the feed subsystem, which includes three collecting tanks (V-1, V-2, and V-3), a sump tank (V-9), a sand filter, and associated ancillary piping and equipment. This tank subsystem and associated soils are listed as Sites TSF-09 and TSF-18 in the Federal Facility Agreement and Consent Order. The Operable Unit 1-10 Record of Decision stipulates that, in addition to remedial activities required under the Comprehensive Environmental Response, Compensation, and Liability Act, this tank subsystem must be closed under the authority of the Hazardous Waste Management Act/Resource Conservation and Recovery Act. This partial closure plan provides a summary of the overall radioactive waste generation and management at the Test Area North and specifies the role and boundaries of the Intermediate-Level Radioactive Waste Feed Subsystem. This closure plan presents the closure performance standards and methods of achieving those standards for the Intermediate-Level Radioactive Waste Feed Subsystem.

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ACRONYMS

ANP	Aircraft Nuclear Propulsion
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
EPA	Environmental Protection Agency
FFA/CO	Federal Facility Agreement and Consent Order
FRG	final remediation goal
FSP	field sampling plan
HWMA	Hazardous Waste Management Act
ICDF	INEEL CERCLA Disposal Facility
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
ILRW	Intermediate-Level Radioactive Waste
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
OU	Operable Unit
PE	professional engineer
RCRA	Resource Conservation and Recovery Act
RD/RAWP	remedial design/remedial action work plan
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
TAN	Test Area North
TSF	Technical Support Facility
USC	United States Code
VCO	Voluntary Consent Order

Hazardous Waste Management Act/ Resource Conservation and Recovery Act Closure Plan for the Test Area North/Technical Support Facility Intermediate-Level Radioactive Waste Management System

Phase II: Feed Subsystem (V-Tanks)

1. INTRODUCTION

Test Area North (TAN), located at the northern end of the Idaho National Engineering and Environmental Laboratory (INEEL), was constructed in the 1950s to support the Aircraft Nuclear Propulsion (ANP) Project. The radioactive wastewater generated during the ANP Project required treatment and storage. The Intermediate-Level Radioactive Waste (ILRW) Management System was constructed at the Technical Support Facility (TSF) to collect, store, and treat ILRW generated throughout the facilities at TAN.

Portions of the ILRW Management System managed waste subsequently determined to be hazardous in accordance with Hazardous Waste Management Act (HWMA) (State of Idaho 1983)/Resource Conservation and Recovery Act (RCRA) (42 United States Code [USC] 6901 et seq., 1976). Therefore, these portions of the system will be closed in accordance with applicable closure standards under Idaho Administrative Procedures Act (IDAPA) 58.01.05.009, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities" (40 Code of Federal Regulations [CFR] Part 265, Subparts G and J). The purpose of this plan is to achieve closure under the specific standards listed at 40 CFR 265.197(a) as a tank system (e.g., "clean closure").

The TAN/TSF ILRW Management System is composed of three subsystems: the ILRW Feed Subsystem (V-Tanks), the ILRW Treatment Subsystem (Liquid Waste Treatment Building [TAN-616]) and the ILRW Holding Tank Subsystem (PM-2A tanks). The ILRW Management System closure will be conducted in three phases as independent partial closures. Closure plans will be submitted and implemented independently until final facility closure is achieved. For purposes of this closure approach, the "facility" is comprised of the three subsystems, which currently represent the unclosed portions of the ILRW Management System. Each partial closure will constitute a closure phase with a total of three phases completing closure of the facility. The phases are as follows:

Phase I: ILRW Treatment Subsystem (TAN-616)

Phase II: ILRW Feed Subsystem (V-Tanks)

Phase III: ILRW Holding Tank Subsystem (PM-2A Tanks).

Final facility closure of the ILRW Management System will be completed upon the completion of all three partial closure phases identified. Closure certification will be completed for each partial closure phase of the project. The feed subsystem (Phase II) and holding tank subsystem (Phase III) are addressed under the *Final Record of Decision (ROD) for Test Area North Operable Unit 1-10* (DOE-ID 1999), referred to hereafter in this document as the Operable Unit (OU) 1-10 ROD and require closure under

HWMA/RCRA. The treatment subsystem (Phase I) is addressed under the Voluntary Consent Order (VCO) Action Plan NEW-TAN-008 (IDEQ 2000).

The ILRW Feed Subsystem, the subject of this closure plan, is comprised of the collecting tanks (V-1, -2, and -3), the sump tank (V-9), the sand filter, and associated ancillary equipment and piping. The collecting tanks (V-1, -2, and -3) last received waste transfers in 1982, 1968, and 1985, respectively; the tanks were pumped to their heels in 1982. From 1982 to 1985, Collecting Tank V-3 was used to actively receive wastewater generated at TSF. Since 1985, the liquid level in Collecting Tank V-3 has been gradually increasing. This increase is in liquid levels believed to be the result of infiltration of rainwater and snowmelt as the increase is typically noted each spring. The collecting tanks, the sump tank, and the sand filter, along with associated ancillary piping, equipment, and contaminated soils, are listed on the Federal Facility Agreement and Consent Order (FFA/CO) Action Plan (DOE-ID 1991) as Sites TSF-09 and TSF-18. As a result of previous investigations, the sites were retained for investigation in the *Comprehensive Remedial Investigation/Feasibility Study (RI/FS) for the Test Area North Operable Unit 1-10 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1997), referred to hereafter in this document as the OU 1-10 RI/FS.

The OU 1-10 RI/FS determined that the ILRW Feed Subsystem (FFA/CO Sites TSF-09 and -18) posed an unacceptable risk to human health. Risk was calculated as exceeding 10^{-4} for external radiation exposure of current workers, future workers, and future residents, primarily from Cesium-137. The OU 1-10 ROD (DOE-ID 1999) documents activities that must be completed for Sites TSF-09 and -18 to ensure protection of human health and identifies that these sites are subject to HWMA/RCRA closure:

The Agencies intend to complete cleanup of the V-Tanks (TSF-09/18) and PM-2A Tanks (TSF-26) under this ROD. These tanks, along with the TSF-19 and TSF-21 tanks, are subject to closure under the State of Idaho Hazardous Waste Management Act (HWMA) authority separate from this ROD.

This partial HWMA/RCRA closure plan addresses the first item from the list of units specified in the declaration of the OU 1-10 ROD; the ILRW Feed Subsystem, which includes the collecting tanks “V-Tanks,” FFA/CO Site TSF-09) and the sump tank and sand filter (FFA/CO Site TSF-18). This closure plan also addresses the closure of the caustic storage tank (V-4) (FFA/CO Site TSF-19) and Valve Pit # 2 (FFA/CO Site TSF-21). The ILRW Holding Tank Subsystem (“PM-2A Tanks,” FFA/CO Site TSF-26) will be closed under HWMA/RCRA as part of Phase III closure activities.

Activities that are planned for closure of the ILRW Feed Subsystem are regulated by both the OU 1-10 ROD and HWMA/RCRA closure requirements. This partial HWMA/RCRA closure plan documents the activities that will be performed to achieve closure of the ILRW Feed Subsystem in accordance with the performance standard set out at IDAPA 58.01.05.009 (40 CFR 265.111 and 265.197).^a The project is also required to meet all RCRA applicable or relevant and appropriate requirements (ARARs) that are identified in the OU 1-10 ROD and ROD amendment (DOE-Idaho 2004a). Compliance with the ROD, as amended, outside the scope of HWMA/RCRA closure requirements is not explicitly discussed further in this document; however, all closure activities will be consistent with the selected remedial action and all specified ARARs as documented in the ROD, as amended. The selected remedial alternative for FFA/CO Sites TSF-09 and -18 is removal of the tank contents and the tank system components, treatment of the waste inventory, as necessary, and disposal.

a. The OU 1-10 ROD (DOE-ID 1999) calls out the closure performance standards for hazardous waste treatment, storage, and disposal facilities (IDAPA 58.01.05.008 [40 CFR 264]); however, as the ILRW Feed Subsystem was not included in a Part B RCRA permit, it is appropriate to close the tank system to the interim status standards of IDAPA 58.01.05.009 (40 CFR 265).

The tank contents and tank system components are Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et seq., 1980) remediation waste; once removed from the TSF-09/18 site, all CERCLA remediation waste will be managed in a CERCLA storage area(s) until disposal. All CERCLA remediation waste will be disposed at the INEEL CERCLA Disposal Facility (ICDF) or other approved facility.

This partial HWMA/RCRA closure plan includes a general description of the ILRW Management System and a specific description of the ILRW Feed Subsystem. A description of the current and maximum waste inventories for the system is included along with currently known applicable Environmental Protection Agency (EPA) hazardous waste numbers. The activities are described that will be conducted to complete closure of the ILRW Feed Subsystem. The performance standard criteria are specified by which compliance with the tank system closure performance standard at IDAPA 58.01.05.009 (40 CFR 265.111 and 265.197) will be evaluated. The ILRW Feed Subsystem will be closed by removing waste and system components. All CERCLA remediation waste will be managed in accordance with applicable HWMA/RCRA requirements as specified in the OU 1-10 ROD (DOE-ID 1999), and ROD amendment (DOE-Idaho 2004a). Information concerning management of waste is provided in Section 4.2 of this document.

All soils associated with the ILRW Feed Subsystem components undergoing closure are located within established FFA/CO Sites TSF-09 and -18. Soils associated with these components remaining upon completion of equipment and soil removal activities will be subject to characterization under HWMA/RCRA closure to confirm that CERCLA final remediation goals (FRGs) for the site are appropriate with regard to HWMA/RCRA-regulated constituents. The FRGs for the site are specified in the OU 1-10 ROD, as amended, and may be further refined as a result of ongoing remedial activities and site characterization to include HWMA/RCRA-regulated constituents that result in a potential threat to human health and the environment. Provisions for HWMA/RCRA closure sampling and analysis of soils remaining within the excavation footprint following tank system removal activities are included in the *Field Sampling Plan for the HWMA/RCRA Closure Certification of the TAN/TSF Intermediate-Level Radioactive Waste Subsystem (V-Tanks)* (INEEL 2003). Any follow on soil removal activities that may be required with respect to these soils will be completed under the provisions of the FFA/CO (DOE-ID 1991). Because any follow-on soil remediation activities, if necessary, will be completed in accordance with the enforceable OU 1-10 ROD, certification of this closure will not include provisions for addressing soils beyond the sampling specified in the field sampling plan (FSP) (INEEL 2003).

2. FACILITY DESCRIPTION

Test Area North was established in the 1950s by the United States Air Force and Atomic Energy Commission ANP Program to support nuclear-powered aircraft research. As a nuclear research facility, radioactive wastewater was generated at several of the TAN facilities. Originally, TAN, which is located at the north end of the INEEL (see Figure 2-1), included the TSF, the Initial Engine Test Facility, the Field Engine Test Facility, the Shield Test Pool Facility, and the Low-Power Test Facility. The Shield Test Pool Facility was later converted to the Experimental Beryllium Oxide Reactor, which was never used.

The TSF was designed to provide centralized management and services for the ANP Project. The service functions included equipment fabrication and assembly, fuel fabrication and inspection, post-irradiation fuel examination, disassembly and examination of equipment exposed to high-level radiation fields, equipment decontamination and repair, and low-level liquid waste concentration and storage in the ILRW Management System. The consolidation of these service functions at TSF eliminated much duplication at the various test facilities and largely limited the work at these locations to the installation and removal of prefabricated units and decontamination of permanently installed equipment (Kerr 1971).

2.1 ILRW Management System Description

The ILRW Management System was constructed in 1955 and began operation in 1958 (Evans and Perry 1993). It was designed to collect, store, and concentrate radionuclide-contaminated liquid waste from TAN facilities. Radioactive liquid waste generated throughout the TAN facilities was piped or trucked to the ILRW Management System from the Initial Engine Test and Low-Power Test Facilities (Hogg et al. 1971; Kerr 1971). However, the majority of radioactive liquid waste generated at TAN was from the decontamination of equipment and facilities at TSF (Kerr 1971).

The TAN/TSF ILRW Management System is composed of three subsystems: the ILRW Feed Subsystem (V-1, V-2, V-3, and V-9), the ILRW Treatment Subsystem (TAN-616), and the ILRW Holding Tank Subsystem (PM-2A tanks). Beginning in 1958, these three subsystems were used to collect and treat radioactive wastewater at TAN as follows:

The feed subsystem was used to collect and store waste prior to treatment

The treatment subsystem was used to concentrate the waste using evaporation, resulting in a concentrated waste stream

The holding tank subsystem was used to collect and store the concentrated waste.

In 1971, a temporary aboveground evaporator (PM-2A) was installed to empty the holding tank subsystem. The PM-2A evaporator was used to empty the holding tanks (V-13 and -14) and potentially for additional transfers of waste from the collecting tanks via the TAN-616 facility. The PM-2A evaporator was taken out of service in 1975 and all aboveground structures and equipment associated with this evaporator were subsequently removed.

In 1972, the TAN-616 evaporator system was removed from service. Subsequent to this date, the TAN-616 facility was used only as a waste transfer building. Between 1972 and 1974, waste collected in the feed subsystem may have been transferred directly to the holding tank subsystem for processing in the PM-2A evaporator. The TAN-616 facility was modified in 1974 to allow transfer of waste from the collecting tanks to a tank truck using equipment and piping inside the TAN-616 building. A vacuum

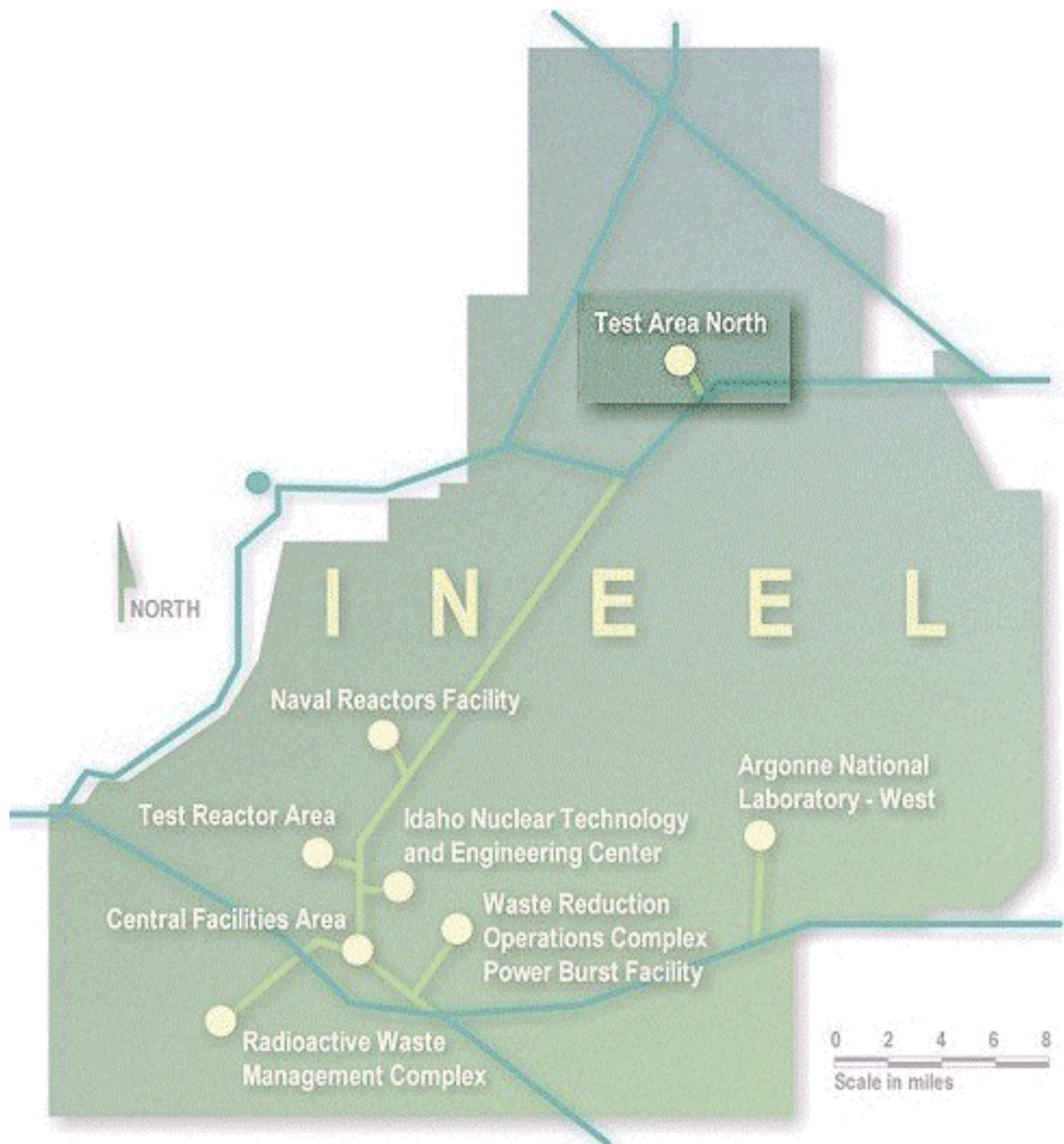


Figure 2-1. Map of the INEEL showing the location of TAN.

pump and hold tank (15 gal), were added to the operating pump room and a small blue centrifugal waste transfer pump was added to the pump room. The vacuum pump and hold tank (15 gal) were used to prime the blue transfer pump. New piping was added to the pump room, operating pump room, caustic pump room, and building exterior; some existing piping was used to complete flow paths from the collecting tanks to the truck loading discharge. Waste from the collecting tanks was transferred to tanker trucks using this apparatus until sometime prior to 1981. Transfer of waste from the collecting tanks after inactivation of the 1974 upgrade apparatus was performed using an in-tank submersible pump which discharged directly to tanker trucks. The last known transfer of waste in this manner was completed in 1982.

The three subsystems are addressed under different regulatory frameworks. The feed subsystem (V-Tanks, the subject of this closure plan) and the holding tank subsystem (PM-2A tanks) are addressed under the FFA/CO (DOE-ID 1999; Sites TSF-09/18 and TSF-26, respectively). The treatment subsystem (Action Plan NEW-TAN-008) is addressed under the VCO. A more detailed description of the feed subsystem components addressed in this partial closure plan is provided in Section 2.2.

The lists of subsystem-specific components for Phase I, which includes the TAN-616 Liquid Waste Treatment Building and associated components and Phase III, which includes the holding tanks [PM-2A tanks (FFA/CO Site TSF-26)], will be provided in the corresponding partial closure plans.

2.2 ILRW Feed Subsystem Description

A discussion of the physical configuration of the units in the ILRW Feed Subsystem is included below. The ILRW Feed Subsystem consists of the collecting tanks (V-1, -2, and -3) [*1006, *1007, and *1008], the sump tank (V-9) [*1004], the sand filter [*1005], and associated piping. Schematic P-CLOS-FFACO-TSF-0918A (Figure 2-2) shows a plot plan of all of the units and associated piping included in the ILRW Feed Subsystem.

2.2.1 Collecting Tanks

The three collecting tanks (V-1, -2, and -3) were installed in 1955 and were used to store ILRW prior to evaporation in TAN-616. The tanks received waste from various processes and buildings at TAN that was routed through sump tank (V-9) to the collecting tanks. The tanks were administratively isolated and did not receive waste after December 1985. The system input lines were cut and blind flanges installed inside Valve Pit # 1 in 1991.

The collecting tanks are horizontal, cylindrical, stainless steel units that are 3.0 m (10 ft) in diameter by 5.5 m (18 ft) in length with a capacity of 10,000 gal each. Located approximately 3.0 m (10 ft) below the ground surface in an open area east of TAN-616 and north of TAN-607, the surface area above the tanks has been fenced off and posted to prevent uncontrolled site access (DOE-ID 1997). There is a culvert and descending ladder that leads to the top of each of the tanks where there is a flange that allows access to the tank (INEL 1994). The collecting tanks are listed on the INEEL FFA/CO as Site TSF-09.

In 1968, collecting Tank V-2 was taken out of service (DOE-ID 1997). After 1975, when the PM-2A evaporator was removed from service, Collecting Tanks V-1 and V-3 were used for collection and storage rather than for feed to an evaporator system (Smith 1983). In 1982, the contents of all three collecting tanks were removed for treatment and disposal at the Idaho Nuclear Technology and Engineering Center (INTEC) and collecting Tank V-1 was removed from service. It is believed, based on the liquid level in the tank, that there was no waste discharged to V-1 or V-2 after they were pumped in 1982. The V-3 collecting tank continued to receive waste until 1985. Between 1982 and 1985, waste

collected in Collecting Tank V-3 was pumped, by using a submersible pump through temporary piping that has been removed, to a tanker truck for transfer to INTEC. In 1991, the lines connecting the waste collection header network to the ILRW Feed Subsystem were capped inside of Valve Pit # 1 (TAN-1704) [*1003]. The collecting tanks have been administratively isolated from TAN-616 by closing and locking the interfacing piping valves and removal of the pumps inside TAN-616.

2.2.2 Sump Tank

The sump tank (V-9) was installed in 1955 and was placed into service shortly thereafter. The sump tank was designed to provide primary clarification of the wastewater routed through Valve Pit # 1 (TAN-1704) [*1003] and Valve Pit # 2 (FFA/CO Site TSF-21). Clarified wastewater overflowed a weir located within the vessel and drained by gravity to the collecting tanks. The tank was designed with an eductor that could have been used to remove accumulated solids. It is thought that an attempt was made to remove solids from the unit sometime in the early 1970s. Anecdotal information suggests that the sand filter, which was presumably designed to filter the accumulated solids waste stream, plugged after one day of operation, and that all further attempts to remove solids from the sump tank were abandoned (DOE-ID 1997).

The sump tank is a vertical cylinder with a conical clarifier-type bottom and a vertical standpipe extending from the top of the tank to ground surface. The sump tank is constructed of stainless steel and is 1.1 m (3.5 ft) in diameter by 2.2 m (7 ft) in height with a capacity of 400 gal. The tank is located approximately 2.5 m (8 ft) southeast of the V-1 collecting tank and is 2.2 m (7 ft) below grade level. The sump tank is included in the FFA/CO as Site TSF-18 (DOE-ID 1997).

2.2.3 Sand Filter

The sand filter is a concrete unit with an approximate capacity of 120 gal located aboveground east of TAN-616. The rectangular tank is approximately 1.5 m (5 ft) in length by 0.9 m (3 ft) in width by 0.9 m (3 ft) in height. The concrete walls are approximately 4 to 6 in. thick. The sand filter, along with the sump tank (V-9) [*1004], is included in the FFA/CO as Site TSF-18.

It is presumed that the sand filter was installed to remove solids from the sump tank (V-9) and appears to have been designed to be disposable. The exact system configuration is unknown, but it is presumed that flexible piping was used to connect the sand filter to the sump tank eductor outlet. The configuration of the sand filter discharge is unknown. Anecdotal information suggests that the sand filter became plugged after one day of operation, and attempts to remove solids from the sump tank were abandoned. Inlet and outlet piping once connected to the sand filter have been removed. The filter contains approximately 5 gal of solid material (DOE-ID 1997).

2.2.4 Valve Pit # 2

Valve Pit # 2 is a concrete structure installed in 1957 to receive wastewater from facilities constructed after the original TSF facilities were constructed in 1954. Waste received in the valve pit was drained by gravity to Valve Pit # 1 [*1003]. The valve pit is identified as FFA/CO Site TSF-21. This valve pit was removed in 1993 and subsequently disposed at Envirocare of Utah. Documentation of the disposal of Valve Pit # 2 will be provided as part of the professional engineer (PE) certification for the ILRW Feed Subsystem. Because this valve pit has been removed and disposed, the only closure activities required for the valve pit and soil formerly associated with it (located north of the collecting tanks) is sampling of this soil. Soils associated with this valve pit are discussed in Section 4.1.3 of this partial closure plan and provisions for obtaining samples from soils in the former location of the valve pit are included in the FSP (INEEL 2003).

2.2.5 Piping

2.2.5.1 Description. The TAN/TSF ILRW Feed Subsystem includes waste piping that is connected to the TAN-616 building, the TAN-615 building, and Valve Pit # 1 (TAN-1704) [*1003]. Each collecting tank is equipped with an input from the sump tank via the feed header (104-A2-6") [*3037b, *3038b, and *3039b for Collecting Tanks V-1, V-2, and V-3, respectively] in TAN-616, a suction line (105-A2-4") [*3040a, *3041a, and *3042a for Collecting Tanks V-1, V-2, and V-3, respectively] to process pumps P-1 and P-1A, and a return line (106-A2-4") [*3045b, *3046b, and *3047b for Collecting Tanks V-1, V-2, and V-3, respectively] from the process pumps. Collecting Tank V-3 also has an input line (WDA-10028-1 1/2") [*3082b] from the sumps in TAN-615. Each of the tanks in the system is equipped with a vent line and the collecting tanks also have a blind-flanged riser extending to the ground surface that may have been used for transfer from trucks. The collecting tanks are also equipped with caustic piping connecting the process/product caustic tank (V-4) to the collecting tanks (801-A2-1 1/2") [*3074b, *3075b, and *3076b for Collecting Tanks V-1, V-2, and V-3, respectively].

The piping associated with the ILRW Management System is shown on Schematic P-CLOS-FFACO-TSF-0918A. The piping to undergo closure activities as part of the ILRW Feed Subsystem is shown on the schematic in purple. A listing of each line included in the ILRW Feed Subsystem including its identification number, INEEL number, origin, terminus, content, construction date, materials of construction, dates of operation, and the current status is included in Table 2-1.

2.2.5.2 Piping Boundaries. The ILRW Feed Subsystem includes all of the units identified within FFA/CO Sites TSF-09 and TSF-18: the Collecting Tanks (V-1, V-2, and V-3) [*1006, *1007, and *1008], the sump tank (V-9) [*1004], and the sand filter [*1005].

Schematic P-CLOS-FFACO-TSF-0918A shows the tanks, piping, and ancillary equipment included in the ILRW Feed Subsystem, which is a subsystem of the ILRW Management System. Components which require closure activities as part of the ILRW Feed Subsystem are shown in purple on the schematic. Influent and effluent piping shown on Schematic P-CLOS-FFACO-TSF-0918A are included in the closure as specified in Table 2-1. The boundaries with interfacing subsystems for each of these lines are as follows:

1. The discharge lines from Valve Pit # 1 [TAN-1704; *1003] to the Sump Tank [V-9; *1004] were cut and capped in 1991 inside the valve pit. These lines [3"-101-A2, *3032; 6"-102-A2, *3033] are included as part of the ILRW Feed Subsystem HWMA/RCRA closure from the existing caps inside Valve Pit # 1 to the Sump Tank. The remainder of the piping inside Valve Pit # 1 is subject to closure under VCO Action Plan NEW-TAN-008 and is addressed in the associated partial closure plan (DOE-Idaho 2004b).
2. Lines connecting the Collecting Tanks [V-1, -2, and -3; *1006, *1007, and *1008] and the Sump Tank [V-9; *1004] to TAN-616 are included as part of the HWMA/RCRA closure of the ILRW Feed Subsystem to the point outside the TAN-616 east wall where the lines can be accessed, cut, and capped (within 6 ft of the outside wall). The remaining lines extending into TAN-616 are subject to closure under VCO Action Plan NEW-TAN-008 and are addressed in the associated partial closure plan (DOE-ID 2004b).
3. The line connecting the TAN-615 sumps [*1009 and *1010] to Collecting Tank V-3 [*1008] was determined to have not managed hazardous waste (EDF-2167) and no closure activities are required. As shown in Figure 2-2, TAN-615 building and sumps have been removed, and line WDA-10028-1 1/2" [*3082b] has been cut and capped near the former location of the building.

4. The contents of the piping comprising line 6"-104-A2 [*3034b, *3037a, *3038a, *3039a] upstream of the valves located inside TAN-616 is included as part of the HWMA/RCRA closure of the ILRW Feed Subsystem. This piping will be drained to the collecting tanks and the waste managed as CERCLA remediation waste as part of remedial activities for FFA/CO Sites TSF-09 and -18. The piping comprising line 6"-104-A2 that is located inside TAN-616 is addressed under VCO Action Plan NEW-TAN-008.
5. The Caustic Tank [V-4; *1017] and associated piping were determined to be empty process/product equipment that does not require further HWMA/RCRA closure activities (EDF-2879).

Piping was included in the ILRW Feed Subsystem based on the original definitions of FFA/CO Sites TSF-09 and -18, stipulating soil and equipment ancillary to the collecting tanks and sump tank would be included in these FFA/CO sites. The FFA/CO is intended to address releases or potential releases to environmental media. For this reason, equipment located within buildings such as TAN-616 or within containment structures such as Valve Pit # 1 are not addressed under the provisions of the FFA/CO. Interfacing piping located within buildings or containment structures are addressed as part of VCO Action Plan NEW-TAN-008. While the site boundaries are not explicitly defined for Sites TSF-09 and -18 in the FFA/CO Action Plan, the RI/FS process developed site boundaries for Sites TSF-09 and -18 limiting the sites to the area in which the tanks are located. These site boundaries were finalized in the OU 1-10 ROD (DOE-ID 1999). Consequently, buried piping upstream of the buildings and containment structures outside the currently accepted boundaries of Sites TSF-09 and -18 are addressed under VCO Action Plan NEW-TAN-008 as specified in the *Voluntary Consent Order NEW-TAN-008 System Identification* (INEEL 2001).

2.3 Caustic Storage Tank

The caustic storage tank (V-4; 98TAN00425) and associated soils are included in the FFA/CO as Site TSF-19. The site is specified as requiring HWMA/RCRA closure in the OU 1-10 ROD (DOE-ID 1999). This inactive process/product tank and associated piping were emptied to standard industrial practices, when the facility was shut down in the 1970s. The associated pump was removed from the facility. The 4,000-gal caustic tank was documented as empty in the OU 1-10 ROD. The process/product caustic tank ancillary piping includes piping that is part of the FFA/CO Site TSF-19 and piping that is part of VCO Action Plan NEW-TAN-008. The VCO piping is not part of this closure and is addressed under separate VCO hazardous waste determination documentation (EDF-2333; EDF-2879). The caustic storage tank (V-4) and ancillary piping that are not addressed under the VCO Action Plan will be removed and transferred to an established CERCLA storage area for interim storage until such time as waste remaining in the caustic tank and ancillary piping can be treated, as necessary, and disposed at the ICDF or other approved disposal facility. Treatment and final disposition of the tank, associated piping, and waste, as necessary, will not be a criterion for completion and certification of HWMA/RCRA closure.

The soils associated with the caustic storage tank were listed as a no-action site in the OU 1-10 ROD. These soils have been incorporated into the newly created FFA/CO Site TAN-616. These soils will undergo further evaluation as part of remedial investigation activities for the new Site TAN-616. As such, the soils will not be addressed further in this closure plan.

Table 2-1. Description of piping requiring closure activities as part of the ILRW Feed Subsystem.

4-Digit ID #	Identification	Origin	Terminus	Status	Original Contents	Diameter (in.)	Length (ft)	Material	Construction Date
*3032c	101-A2-3"	Existing caps inside Valve Pit # 1	Sump Tank (V-9)	This line is cut inside Valve Pit # 1.	Radioactive Wastewater	3	3	Stainless Steel	1953
*3033c	102-A2-6"	Existing caps inside Valve Pit # 1	Sump Tank (V-9)	This line is cut and plugged inside Valve Pit # 1.	Radioactive Wastewater	6	3	Stainless Steel	1953
*3034a	104-A2-6"	Sump Tank V-9	Within 6 in. of the TAN-616 Building East Wall	The line remains connected but out of service. The valves inside TAN-616 associated with this line were locked closed on October 17, 2001.	Radioactive Wastewater	6	35.5	Stainless Steel	1953
*3037b	104-A2-6"	Within 6 in. of the TAN-616 Building East Wall	Collecting Tank V-1		Radioactive Wastewater	6	16	Stainless Steel	1953
*3038b	104-A2-6"	Within 6 in. of the TAN-616 Building East Wall	Collecting Tank V-2		Radioactive Wastewater	6	24.5	Stainless Steel	1953
*3039b	104-A2-6"	Within 6 in. of the TAN-616 Building East Wall	Collecting Tank V-3		Radioactive Wastewater	6	33.5	Stainless Steel	1953
*3040a	105-A2-4"	Collecting Tank V-1	Within 6 in. of the TAN-616 Building East Wall	The collecting tank (V-1, -2, and -3) pump feed lines and return flow lines have been disconnected and plugged on the TAN-616 side of the valves inside the building. These valves are shut, locked, and administratively controlled.	Radioactive Wastewater	4	16	Stainless Steel	1953
*3041a	105-A2-4"	Collecting Tank V-2	Within 6 in. of the TAN-616 Building East Wall		Radioactive Wastewater	4	19	Stainless Steel	1953
*3042a	105-A2-4"	Collecting Tank V-3	Within 6 in. of the TAN-616 Building East Wall		Radioactive Wastewater	4	27.5	Stainless Steel	1953
*3045b	106-A2-4"	Within 6 in. Outside of the TAN-616 Building East Wall	Collecting Tank V-1		Radioactive Wastewater	4	25.5	Stainless Steel	1953
*3046b	106-A2-4"	Within 6 in. Outside of the TAN-616 Building East Wall	Collecting Tank V-2		Radioactive Wastewater	4	15	Stainless Steel	1953
*3047b	106-A2-4"	Within 6 in. Outside of the TAN-616 Building East Wall	Collecting Tank V-3		Radioactive Wastewater	4	24.5	Stainless Steel	1953

3. ILRW FEED SUBSYSTEM CURRENT AND MAXIMUM WASTE INVENTORIES

3.1 Waste Characterization

A preliminary hazardous waste determination has been completed for the waste contained within the ILRW Feed Subsystem. This determination was based on sampling results from the Track 2 investigation, which was performed in 1993 (INEL 1994), and the sampling results from the RI/FS, which was performed in 1996 (DOE-ID 1997) as well as other available historical characterization data. The available historical data indicates that these tanks contain waste that is hazardous per HWMA/RCRA regulations. Based on sampling data and process knowledge, at least one hazardous waste number is applicable to the subsystem. Trichloroethene in sufficient concentrations was used for its solvent properties in the TAN-607 decontamination room and has been confirmed to be present in the tanks. The disposal of spent trichloroethene to the decontamination room sump along with the pumping of the sump results in the application of the F001 listed waste number to the decontamination room sump and downstream components, including the sump tank, collecting tanks, and sand filter.

Further information on the characterization of the waste within these tanks is expected from sampling under future CERCLA sampling plans. The results of additional waste characterization may result in the application of additional EPA hazardous waste numbers to the waste managed within the system. Hazardous waste numbers that are potentially applicable include those for metals, VOCs, and SVOCs.

3.2 Current Waste Inventory

The collecting tanks currently contain the volumes of waste specified in Table 3-1. The liquid levels in Collecting Tanks V-1 and -2 have remained constant since they were pumped in 1982. The liquid level in Collecting Tank V-3 has been gradually increasing. This increase in level is suspected to be the result of infiltration of rainwater and snowmelt to the tank.

3.3 Maximum Waste Inventory

The maximum capacity of the tanks included in the system is approximately 30,520 gal. This is derived from the total of each vessel in the subsystem for which the capacity is known or can be estimated. The collecting tanks (V-1, -2, and -3) have a maximum capacity of 10,000 gal each for a combined capacity of 30,000 gal, the sump tank has a capacity of 400 gal, and the capacity of the sand filter is approximately 120 gal.

Table 3-1. Current waste inventory of ILRW Feed Subsystem units.

	V-1	V-2	V-3	V-9	Sand Filter
Current Estimated Solid Inventory (gal)	520	520	652	250	5
Current Estimated Liquid Inventory (gal)	1,164	1,076	7,647	70	—

3.4 HWMA/RCRA Contaminants of Concern

A preliminary list of contaminants of concern and potential concern is provided in Table 3-2. This list was prepared based on currently available characterization data for the contents of the collecting tanks and the sump tank. Contaminants of concern, for purposes of HWMA/RCRA closure were identified as those contaminants detected within the waste matrix that meet one of the following criteria:

Constituent listed at 40 CFR 261.24 for the toxicity characteristic

Constituent listed in 40 CFR 261, Appendix VIII

Constituent listed in EPA Region 9 preliminary remediation goal table

Constituent listed with quantified carcinogenic slope factor or toxic reference dose in EPA Integrated Risk Information System Database.

Contaminants of potential concern are defined as those contaminants that were not detected due to elevated detection limits, but which may be present. Forthcoming waste stream characterization efforts may be completed under the field sampling plan that will be prepared in support of the remedial design/remedial action work plan (RD/RAWP) for remedial activities associated with this site or other CERCLA sampling plans, as necessary. Any contaminants of potential concern or additional constituents detected meeting the above criteria will be considered to be contaminants of concern (COCs) for purposes of HWMA/RCRA closure. If the results of pending waste characterization sampling indicate that some preliminary COCs are not present in the waste contained within the tanks, the COC list may be revised accordingly.

The purpose of defining the COC list included in Table 3-2 is to bound soil sampling activities that will be conducted under the FSP (INEEL 2003).

Table 3-2. Currently identified contaminants of concern and potential concern for HWMA/RCRA closure of the ILRW Feed Subsystem.^a

Metals	Volatile Organic Analytes	Semivolatile Organic Analytes	Anions	Polychlorinated Biphenyls
<u>Contaminants of Concern</u>				
Silver	1,1-dichloroethane	1,2,4-trichlorobenzene	Cyanide Fluoride	Aroclor-1260
Aluminum	1,2-dichloroethylene	1,2-dichlorobenzene		
Arsenic	Bromomethane	1,3-dichlorobenzene		
Barium	Chloromethane	1,4-dichlorobenzene		
Beryllium	methylene chloride	2,4-dimethylphenol		
Cadmium	tetrachloroethene	2-methylphenol		
Chromium	Trichloroethene	4,6-dinitro-2-methylphenol		
Iron	Trichloroethane	4-methylphenol		
Manganese	vinyl chloride	4-nitrophenol		
Nickel		bis(2-ethylhexyl) phthalate		
Phosphorus		di-n-butylphthalate		
Lead		di-n-octylphthalate		
Antimony		naphthalene		
Selenium		phenol		
Thallium		pyrene		
Vanadium				
Zinc				
Mercury				
<u>Contaminants of Potential Concern</u>				
None	carbon tetrachloride	acenaphtene	None	None
	chlorobenzene	acenaphthylene		
	chloroethane	anthracene		
	chloroform	benzo (a) anthracene		
	1,2-dichloroethane	benzo (a) pyrene		
	1,1-dichloroethene	benzo (a) fluoranthene		
	1,2-dichloropropane	benzo (g,h,l) perylene		
	trans-1,3-dichloropropene	benzo (k) fluoranthrene		
	ethylbenzene	bis (2-chloroethyl) ether		
	1,1,2,2,-tetrachloroethane	bis (2-chloroisopropyl) ether		
	toluene	Chrysene		
	1,1,2-trichloroethane	2-chloronaphthalene		
		2-chlorophenol		
		fluoranthene		
		fluorene		
		hexachlorobutadiene		
		hexachlorocyclopentadiene		
		indeno (1,2,3-cd) pyrene		
		2-nitroaniline		
		4-nitroaniline		
		pentachlorophenol		
		phenanthrene		
		2,4,6-trichlorophenol		

a. The COC list was developed based on detections of constituents in the existing waste matrix contained within Collecting Tanks V-1, -2, and -3, and Sump Tank V-9. Because of analytical uncertainties associated with historical characterization data, future waste stream characterization efforts may result in modifications to this list.

4. CLOSURE OF THE ILRW FEED SUBSYSTEM

This section specifies the activities required to comply with the closure performance standard (IDAPA 58.01.05.009 [40 CFR 265.111 and 265.197]) for the ILRW Feed Subsystem and provides details as to how these activities will be completed.

The closure performance standards identified in IDAPA 58.01.05.009 (40 CFR 265.111) are:

1. The owner or operator must close the facility in a manner that minimizes the need for further maintenance (IDAPA 58.01.05.009 [40 CFR 265.111(a)]).
2. The owner or operator must close the facility in a manner that controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere (IDAPA 58.01.05.009 [40 CFR 265.111(b)]).
3. The owner or operator must close the facility in a manner that complies with the closure requirements of this subpart, including, but not limited to, the requirements of 40 CFR 265.197, 265.228, 265.258, 265.280, 265.310, 265.351, 265.381, 265.404, and 265.1102 (IDAPA 58.01.05.009 [40 CFR 265.111(c)]).

4.1 Activities to Achieve Compliance with the Closure Performance Standard

The following sections describe the activities that would be taken to achieve the closure performance standard.

4.1.1 Standard 1

The owner or operator must close the facility in a manner that minimizes the need for further maintenance (IDAPA 58.01.05.009 [40 CFR 265.111(a)]).

The activities required to minimize further maintenance of the ILRW Feed Subsystem are:

1. Isolate the system components
2. Remove the waste inventory
3. Remove system components.

4.1.1.1 Isolate System Components. The tank system has been administratively isolated since approximately 1985 and the input piping was physically isolated in 1991 by disconnecting piping within Valve Pit # 1. The system boundaries are shown on Schematic P-CLOS-FFACO-TSF-0918A and discussed in Section 2.2.5.2. The system will be completely isolated by disconnecting and capping the piping as appropriate.

4.1.1.2 Remove Waste Inventory. As specified in Section 3, hazardous liquid and/or sludge is currently contained within each of the collecting tanks (V-1, -2, and -3), the sump tank (V-9), and residual solid materials are contained within the sand filter. The residual solid material contained within the sand filter will be removed along with the sand filter itself. The waste contained within the collecting tanks and

sump tank will be removed using standard industrial practices and managed as described in Section 4.2. Liquid waste may also be contained within waste transfer header 104-A2-6" located within the TAN-616 Liquid Waste Treatment Building. Sometime prior to initiating collecting tank waste removal activities, the valves within TAN-616 behind which this waste may be contained will be opened to allow the residual liquid (if any is present) to drain to the collecting tanks.

4.1.1.3 Remove System Components. All system components identified in Section 2.2 will be removed as specified below and managed as described in Section 4.2.

4.1.1.3.1 Piping—Interfacing piping contains valves which, prior to piping removal, will have been opened to ensure no liquids are contained within the lines to prevent potential release during piping removal activities. The waste piping connecting the collecting tanks to TAN-616 will be removed from the tanks to within 6 in. of the TAN-616 building. Piping to be removed includes lines 104-A2-6", 105-A2-4", and 106-A2-4", which are comprised of segments *3037b, *3038b, and *3039b; *3040a, 3041a, and 3042a; and 3045b, 3046b, and 3047b, respectively (see Schematic P-CLOS-FFACO-TSF-0918A).

The line connecting the sump tank (V-9) [*1004] to the TAN-616 building will be removed from the sump tank to within 6 in. of the TAN-616 building. Piping to be removed includes line 104-A2-6" [*3034a] (See Schematic P-CLOS-FFACO-TSF-0918A).

Piping (101-A2-3" and 102-A2-6") [*3032c and *3033c] connecting the sump tank (V-9) [*1004] to Valve Pit # 1 (TAN-1704) [*1003] will be removed to existing caps inside the valve pit (see Schematic P-CLOS-FFACO-TSF-0918A).

Common industrial practices will be used to remove each of the specified lines. Piping will be cut and sealed in such a manner as to mitigate the potential for release to the environment during isolation and removal activities. Removed piping will be managed as discussed in Section 4.2. The open ends of any piping shown in blue on Schematic P-CLOS-FFACO-TSF-0918A (Figure 2-2) that is to remain in situ (if any) will be permanently capped or plugged.

4.1.1.3.2 Tanks and Components—The sand filter and residual material contained within the concrete structure will be removed. The filter and its contents will be managed as discussed in Section 4.2.

Collecting Tank V-3 [*1008]. Collecting Tank V-2 [*1007] and Collecting Tank V-1 [*1006] and Sump Tank V-9 will be removed using common industrial practices. The removed tanks will be managed as discussed in Section 4.2.

Valve Pit # 2 [*1002] was removed in 1993 and subsequently disposed at Envirocare of Utah. Disposal of this concrete structure will be documented in the PE certification for closure of the ILRW Feed Subsystem.

4.1.2 Standard 2

The owner or operator must close the facility in a manner that controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere (IDAPA 58.01.05.009 [40 CFR 265.111(b)]).

The activities required minimizing or eliminating the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or the atmosphere are:

1. Isolate system components (addressed under Standard 1)
2. Remove waste inventory (addressed under Standard 1)
3. Remove system components (addressed under Standard 1).

4.1.3 Standard 3

The owner or operator must close the facility in a manner that complies with the closure requirements of this subpart, including, but not limited to, the requirements of 40 CFR 265.197, 265.228, 265.258, 265.280, 265.310, 265.351, 265.381, 265.404, and 265.1102 (IDAPA 58.01.05.009 [40 CFR 265.111(c)]).

As the ILRW Treatment Subsystem is a tank system, it is subject to the closure requirements specified at 40 CFR 265.197. The purpose of this closure plan is to attain “clean closure” in accordance with 40 CFR 265.197(a). As such the relevant closure performance standard identified in IDAPA 58.01.05.009 (40 CFR 265.197) is:

- At closure of a tank system, the owner or operator must remove or decontaminate all waste residuals, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless §261.3(d) of this Chapter [CFR Title 40] applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in Subparts G and H of this part (IDAPA 58.01.05.009 [40 CFR 265.197(a)]).

The activities required to close the tank system in accordance with 40 CFR 265.197(a) is:

1. Isolate system components (addressed under Standard 1)
2. Remove waste inventory (addressed under Standard 1)
3. Remove system components (addressed under Standard 1)
4. Sample soils beneath the collecting and sump tanks following tank system removal activities (e.g., surface soils within the excavation footprint) and analyze for HWMA/RCRA COCs to confirm CERCLA-derived FRGs are protective with respect to HWMA/RCRA-regulated constituents.

All equipment undergoing closure as part of the ILRW Feed Subsystem is located within the defined area of potential contamination for FFA/CO Sites TSF-09 and -18. These FFA/CO sites are shown on Schematic P-CLOS-FFACO-TSF-0918B (Figure 4-1).

Soils associated with piping and the sand filter will be removed as part of the excavation activities for the collecting and sump tanks. All removed soils will be managed as specified in Section 4.2 of this partial closure plan. The only soils associated with components undergoing closure under this partial closure plan that will remain in place at the conclusion of closure activities are the soils beneath the collecting and sump tanks within the excavation footprint and the soils formerly associated with Valve Pit # 2 (FFA/CO Site TSF-21). The former location of Valve Pit # 2 is shown on Figure 4-1. Following

tank system removal activities, soils will be removed, as necessary, to ensure compliance with CERCLA FRGs. Upon completion of necessary soil removal activities, the soils remaining within the excavation footprint will be sampled and analyzed for HWMA/RCRA contaminants of concern to confirm that the CERCLA-derived FRGs are protective with respect to HWMA/RCRA-regulated constituents. Provisions for sampling and analysis of these soils under HWMA/RCRA closure are included in the FSP (INEEL 2003). A summary of the validated analytical data and data quality assessment report resulting from the sampling specified in this FSP will be included in the PE certification for partial closure of the ILRW Feed Subsystem. Any follow on activities which may be required as a result of the analytical data generated from this sampling effort will be completed as part of FFA/CO remedial activities as stipulated in the OU 1-10 ROD and are not criteria for completion and certification of this HWMA/RCRA closure. The certification of this closure will not address the soil provisions of 40 CFR 265.197(a) as remediation of this soil is addressed in the enforceable OU 1-10 ROD. If necessary, HWMA/RCRA requirements for landfill closure and post closure care will be applied as ARARs to the follow-on CERCLA activities. In this event, a closure and post-closure plan will be submitted to the agencies in accordance with these post-closure care ARARs.

4.2 Waste Management

The HWMA/RCRA closure activities described in this partial closure plan are subject to applicable HWMA/RCRA requirements. These applicable requirements are specified in the OU 1-10 ROD (DOE-ID 1999), and ROD amendment (DOE-Idaho 2004a). All closure-derived waste from the ILRW Feed Subsystem, will be retrieved, stored, treated (as necessary), and disposed as CERCLA remediation waste in accordance with the OU 1-10 ROD.

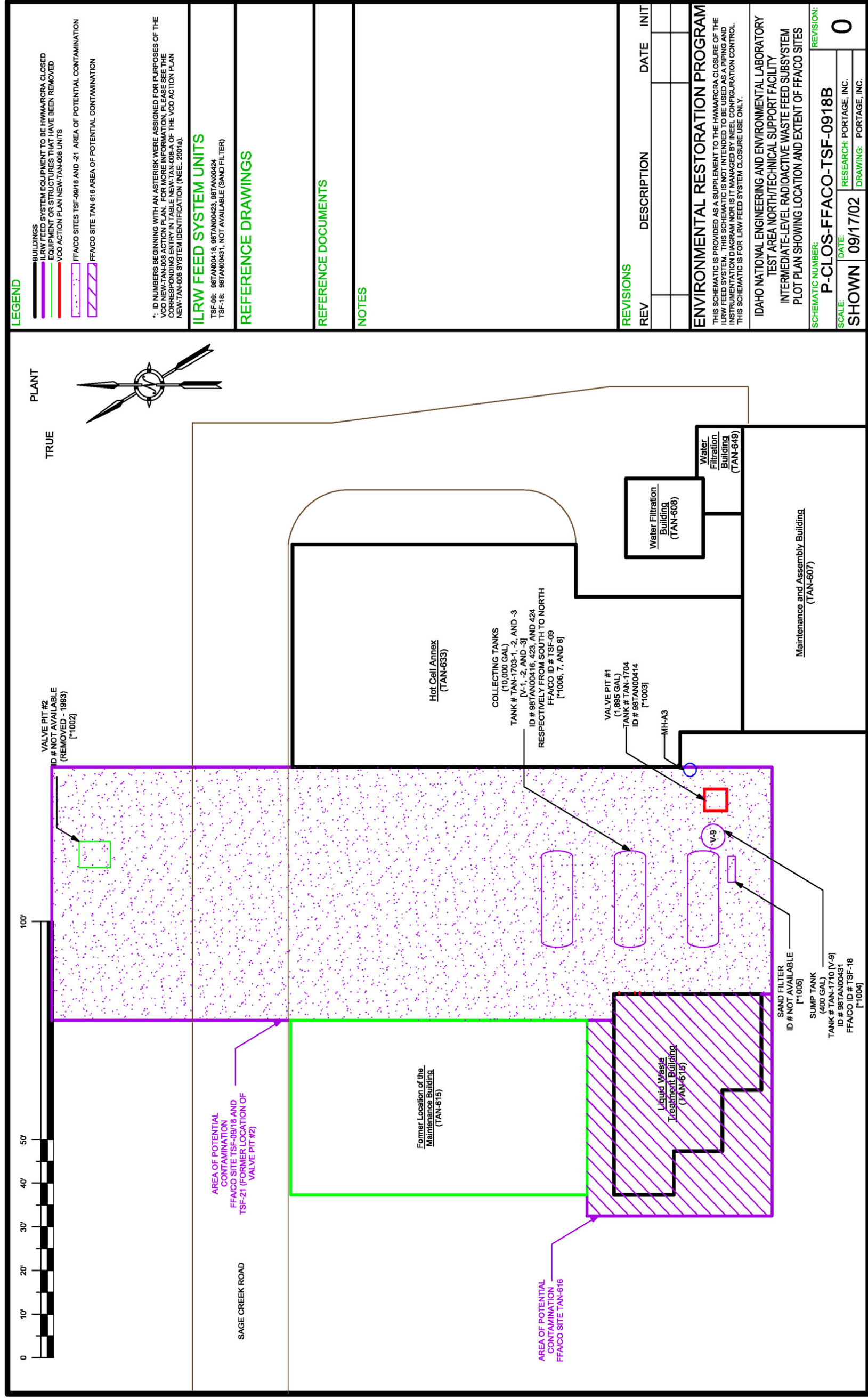
The 90-day administrative timeframe stipulated in IDAPA 58.01.05.006 [40 CFR 262.34(a)(1)] does not apply to wastes generated during closure of the ILRW Feed Subsystem because the closure-derived waste is CERCLA waste. Closure-derived waste will be removed from the demarcated closure area and transferred to the ICDF or placed in an established CERCLA storage area prior closure certification. The PE certification for closure of the ILRW Feed Subsystem will document that the tank system components and waste inventory are placed in CERCLA storage.

4.2.1 Waste Characterization

All closure-derived waste will undergo a hazardous waste determination in accordance with IDAPA 58.01.05.006 (40 CFR 262.11).

4.2.2 Waste Treatment

The waste inventory and tank system components, once removed, will be transferred to an established CERCLA storage area for interim storage until such time as they can be treated, as necessary, for disposal. Treatment and final disposition of the waste will not be a criterion for completion and certification of HWMA/RCRA closure.



4.2.3 Equipment Decontamination

It is expected that decontamination will be required for closure equipment (e.g., tools and heavy equipment) that has come into contact with hazardous waste and which will be reused. Only that equipment that has come into direct contact with hazardous waste will require decontamination. Project logs will be maintained that document all equipment that has contacted hazardous waste. The equipment will be cleaned to display a visible surface appearance approximating a clean debris surface analogous to that specified and identified under IDAPA 58.01.05.011 (40 CFR 268.45). The listed waste status will not apply to the closure equipment (i.e., tools, etc.) that has been decontaminated for reuse. The method and result of decontamination of all equipment will be documented and maintained as part of the project record.

4.2.4 Secondary Waste Streams and Decontamination Residues

Decontamination residues (liquids, rags, etc.) will be managed based on hazardous waste determination and characterization by the INEEL Waste Generator Services. Decontamination residues and other secondary waste streams such as spent personal protective equipment will be packaged and disposed as CERCLA remediation waste.

4.2.5 Waste Disposal

All waste generated from closure activities associated with the ILRW Feed Subsystem will be characterized before disposal and will be treated or packaged, as necessary, and disposed at the ICDF as CERCLA remediation waste in accordance with the OU 1-10 ROD (DOE-ID 1999), and ROD amendment (DOE-Idaho 2004a), disposed of at an other approved facility, or placed in an established CERCLA storage area. Verification documentation that all waste has been disposed or placed in CERCLA storage will be included in the closure certification.

5. CLOSURE SCHEDULE

Table 5-1 identifies the schedule for performing and completing the closure activities specified in this plan. This schedule reflects the time required for conducting closure activities and submitting information to the PE for the closure certification. If closure activities are completed ahead of schedule, the INEEL will accelerate the closure certification process accordingly. Quarterly reports summarizing closure activity progress will be submitted to the Idaho Department of Environmental Quality (IDEQ) by April 30, July 31, October 31, and January 31 of each year. Quarterly progress reporting to IDEQ will commence on the first of the aforementioned dates following Day 0.

Because the activities specified in this partial closure plan are to be completed under the provisions of the FFA/CO (DOE-ID 1991) and the OU 1-10 ROD (DOE-ID 1999), they are subject to the schedule provisions contained therein. The schedule for completing the specified activities will be affected by the amendment to the OU 1-10 ROD (DOE-ID 2004a) and the RD/RAWP. The schedule outlined in Table 5-1 is subject to change based upon the OU 1-10 ROD amendment and the schedule in the RD/RAWP. Any change to the schedule presented in Table 5-1 will be provided to IDEQ and this plan modified, as necessary, to reflect changes resulting from the FFA/CO process. Day 0, for purposes of this closure plan, will be on or before January 1, 2005. The schedule outlined in Table 5-1, incorporating any changes resulting from the FFA/CO administrative process, will then be followed, and quarterly reporting will commence following Day 0.

The IDAPA 58.01.05.009 (40 CFR 265.113) requires waste removal activities to be complete 90 days from the approval of the closure plan and closure to be complete within 180 days from the initiation of the closure. An extension to these time periods is being requested at this time, pursuant to IDAPA 58.01.05.009 (40 CFR 265.113). Waste removal and closure activities cannot be completed within these timeframes due to:

Elevated radiation fields and INEEL requirements for keeping worker radiation exposure as low as reasonably achievable

Care in work planning to ensure no future release to the environment

Excavation and shoring difficulties associated with the location of the system near surrounding buildings

Care in planning to ensure worker safety associated with excavation.

Table 5-1. Schedule for the closure of the ILRW Feed Subsystem.

Planned Work Tasks	Calendar Day to Completion
Begin removing waste from Tanks V-1, V-2, V-3, and V-9	Day 0
Completion of removal of waste from Tanks V-1, V-2, V-3, and V-9	Day 150
Removal of tanks and ancillary piping	Day 270
Soil sampling and data analysis complete	Day 350
Completion of closure activities	Day 365
Professional engineer approval of closure activities and submittal to the state	Within 60 days of completion of closure activities.

6. CLOSURE PLAN AMENDMENTS

The conditions described in IDAPA 58.01.05.009 (40 CFR 265.112), “Closure Plan; Amendment of Plan,” will be followed to implement changes to the approved closure plan. Should unexpected events during the closure period require modification of the approved closure activities or closure schedule, the closure plan will be amended within 30 days of the unexpected event. A written request detailing the proposed changes and the rationale for those changes and a copy of the amended closure plan will be submitted to IDEQ for approval or IDEQ will be otherwise notified. Minor changes to the approved closure plan, which are equivalent to or do not compromise the closure requirements and performance standards identified in the approved closure plan, may be made without prior notification to IDEQ. Minor changes will be identified in the documentation supporting the independent PE’s certification.

7. CERTIFICATION OF CLOSURE

If closure activities achieve the closure performance standards outlined in this closure plan, a certification of closure of the ILRW Feed Subsystem will be completed, in accordance with IDAPA 58.01.05.009 (40 CFR 265.115), by an independent professional engineer within 60 days of completion of the activities. The certification will not include compliance with the soil remediation provisions of 40 CFR 265.197(a), as these soils will be addressed in accordance with the OU 1-10 ROD (DOE-ID 1999). The professional engineer and owner/operator signatures on the closure certification, which is submitted to the IDEQ, will document the completion of closure activities in accordance with the approved closure plan and State of Idaho HWMA/RCRA requirements. The closure certification may also identify any minor changes to the closure plan made without prior approval of the IDEQ. Closure of the ILRW Feed Subsystem will be considered complete upon receipt of written acceptance issued by the IDEQ; the ILRW Management System will be considered closed upon closure certification of the three partial HWMA/RCRA closures as defined in Section 1 of this document.

Copies of documentation supporting the closure of the ILRW Feed Subsystem will remain in the project files in the event that information is requested by IDEQ. Upon completion of closure as a tank system under HWMA/RCRA, the ILRW Feed Subsystem will not be a hazardous waste disposal facility, and, therefore, a “notice in deed” and a survey plat are not required.

8. COST AND LIABILITY REQUIREMENTS

The federal government, as owner of the INEEL, is exempt from the requirements to provide cost estimates for closure; to provide a financial assurance mechanism for closure; and regarding state-required mechanism and state assumption of responsibility. The federal government is also exempt from liability requirements.

9. REFERENCES

- 40 CFR 261, 2003, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations*, Office of the Federal Register, July 1, 2003.
- 40 CFR 262, 2003, "Standards Applicable to Generators of Hazardous Waste," *Code of Federal Regulations*, Office of the Federal Register, July 1, 2003.
- 40 CFR 264, 2003, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, Office of the Federal Register, July 1, 2003.
- 40 CFR 265, 2003, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, Office of the Federal Register, July 1, 2003.
- 40 CFR 268, 2003, "Land Disposal Restrictions," *Code of Federal Regulations*, Office of the Federal Register, July 1, 2003.
- 42 USC 6901 et seq., 1976, "Resource Conservation and Recovery Act of 1976," as amended.
- 42 USC 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation, and Liability Act of 1980," as amended. (NOTE: The 1986 amendment is cited as "Superfund Amendments and Reauthorization Act of 1986," [SARA].)
- DOE-Idaho, 2004a, *Record of Decision Amendment for the V-Tanks (TSF-09 and TSF-18) and Explanation of Significant Differences for the PM-2A Tanks (TSF-26) and TSF-06, Area 10, at Test Area North, Operable Unit 1-10 at the Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho*, DOE/ID-10682 Amendment, Rev. 0, February 2004.
- DOE-Idaho, 2004b, *HWMA/RCRA Closure Plan for the TAN/TSF Intermediate-Level Radioactive Waste Management System - Phase I: Treatment Subsystem (TAN-616)*, DOE/ID-11021, Rev. 2, January 2004.
- DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory*, Administrative Docket No. 1088-06-120, State of Idaho Department of Health and Welfare, U.S. Environmental Protection Agency Region 10, and U.S. Department of Energy Idaho Field Office, December 9, 1991.
- DOE-ID, 1997, *Comprehensive Remedial Investigation/Feasibility Study for the Test Area North Operable Unit 1-10 at the Idaho National Engineering and Environmental Laboratory*, DOE/ID-10557, Rev. 0, November 1997.
- DOE-ID, 1999, *Final Record of Decision for Test Area North Operable Unit 1-10*, DOE/ID-10682, Rev. 0, December 1999.
- EDF-2167, 2002, "VCO NEW-TAN-008 Characterization – TAN-615 Pits/Sumps," Rev. 0, May 2002.
- EDF-2333, 2003, "VCO NEW-TAN-008 TAN-616 Liquid Waste Treatment Facility Characterization-Influent and Effluent Units and Associated Piping External to TAN-616," Rev. 2, February 2003.

EDF-2793, 2001, "VCO NEW-TAN-008 TAN-616 Liquid Waste Treatment Facility Characterization," Rev. 1, November 2001.

EDF-2879, 2002, "VCO NEW-TAN-008 TAN-616 Liquid Waste Treatment Facility Characterization - Interior Units," Rev. 0, April 2002.

EPA, 1989, *CERCLA Compliance with Other Laws Manual*, EPA 9234.1, October 1989.

Evans, T. A., and E. F. Perry, 1993, *Final Report of the Remedial Action Taken for the TAN Building 616 Liquid Waste Treatment Facility*, EGG-2714, September 1993.

Hogg, G.W., et al., 1971, "A Survey of NRTS Waste Management Practices," Volumes I and II, ICP-1042, 1971.

IDAPA 58.01.05.006, 2004, "Standards Applicable to Generators of Hazardous Waste," Idaho Administrative Procedures Act, Idaho Department of Environmental Quality Rules, March 20, 2004.

IDAPA 58.01.05.008, 2004, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities," Idaho Administrative Procedures Act, Idaho Department of Environmental Quality Rules, March 20, 2004.

IDAPA 58.01.05.009, 2004, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities," Idaho Administrative Procedures Act, Idaho Department of Environmental Quality Rules, March 20, 2004.

IDAPA 58.01.05.011, 2004, "Land Disposal Restrictions," Idaho Administrative Procedures Act, Idaho Department of Environmental Quality Rules, March 20, 2004.

IDEQ, 2000, B. R. Monson, IDEQ, to D. N. Rasch, DOE-ID, Enclosure: "Consent Order," Idaho Code § 39-4413, June 14, 2000.

INEEL, 2001, *Voluntary Consent Order NEW-TAN-008 System Identification*, "TAN-616 Liquid Waste Treatment System," INEEL/EXT-2000-01263, Rev. 1, June 2001.

INEEL, 2003, *Field Sampling Plan for the HWMA/RCRA Closure Certification of the TAN/TSF Intermediate-Level Radioactive Waste Subsystem (V-Tanks)*, INEEL/EXT-02-01465, Rev. 0, May 2003.

INEL, 1994, *Preliminary Scoping Track 2 Summary Report for the Test Area North Operable Unit 1-05: Radioactive Contamination Sites*, INEL-94/0135, Rev. 0, October 1994.

Kerr, W. B., 1971, *A Study of Radioactive Liquid Waste Management at Test Area North (TAN)*, ACI-101, December 1971.

Smith, D. L., 1983, *Final Report Decontamination and Decommissioning of TAN Radioactive Liquid Waste Evaporator System (PM-2A)*, EGG-2236, March 1983.